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MR. SCHLEEDE AND THE WIND

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Recently, Mr. Glenn Schleede, who states that he is a "self-financed" consultant acting in the public interest, circulated one of a series of "fact sheets" he has written over the past several years attacking wind energy.

The American Wind Energy Association (AWEA) has reviewed Mr. Schleede's publications, and while we do not wish to spend scarce resources of time and effort getting bogged down in lengthy point-by-point responses, we would like to address a number of issues raised by Mr. Schleede's writings:

1. Mr. Schleede's Background and Funding Sources

It is highly commendable, if true, that Mr. Schleede is willing to take the time and spend the money to develop informational materials on energy policy for the general public. Unfortunately, public-spiritedness is no guarantee of fairness or accuracy. The materials that he has authored and we have reviewed over the past several years are basically anti-wind mudslinging rather than useful information sources. The public policy debate is hindered by such distortion, regardless of the funding source.

In this connection, it seems relevant to note that Mr. Schleede has also been an active campaigner against the Kyoto Agreement on global warming and that he is a former Senior Vice President of the National Coal Association.

2. Compared to What?

Mr. Schleede's fact sheets typically talk about wind energy in isolation. This is misleading, because it gives the impression that the choice is between a wind farm and nothing. Of course, nothing looks very attractive—by definition, it has no environmental impacts or other drawbacks. However, when you flip a light switch, you will probably be very disappointed if nothing comes out of the wall.

In the real world, the choice is always between wind and something else—a wind plant that is not built in location X means more coal that is mined, shipped, and burned in location Y, or some other type of generation—and the environmental impacts of other energy sources are almost always greater than those of an equivalent amount of wind generation.

If Mr. Schleede does make a comparison, it is typically between wind and a natural gas plant. This in itself is somewhat misleading, since America obtains more than three times as much electricity from coal as it does from gas. But beyond that

question, his comparison omits the impact of **EXTRACTING** the gas, which can be quite severe, in terms of noise and air and water pollution.

Energy production is always about choices. For an authoritative study of our energy choices and their environmental impacts, see "The Environmental Imperative for Renewable Energy: An Update," available from the Renewable Energy Policy Project on the Web at http://www.repp.org/repp_pubs/repp_publications.html.

3. "Huge machines" that produce "little electricity"

The contrast between "huge machines" and "very little electricity" is one that appears repeatedly in Mr. Schleede's documents. Unfortunately, it makes little sense. Wind plants are "modular" (composed of many individual generators), which combined can generate large amounts of electricity. One good way to understand what they can do:

A single one-megawatt (MW) wind turbine generator will produce approximately 2.6 million kilowatt-hours (kWh) of electricity each year. Over a 25-year lifetime, the turbine will generate about 66 million kWh. To generate that same amount of electricity, it would be necessary to burn 33,000 tons of coal (3,300 10-ton truckloads, or 2.5 truckloads every week for all 25 years) or 110,000 barrels of oil (12 barrels a day, every day, for all 25 years). To say it another way, the turbine is over 200 feet tall, which is indeed large. However, it is in effect replacing a 13-mile-long line of 10-ton dump trucks filled with coal.

4. Is wind energy costly?

Mr. Schleede claims that wind energy is too costly, and points out that it is subsidized by the federal government.

The cost of electricity from new wind plants is competitive with the cost of new conventional (coal, gas, nuclear) power plants, with the federal wind energy production tax credit taken into account. It is true that few wind plants would be built without this incentive/subsidy. However, it is also true that the traditional energy industries are generously subsidized in a variety of ways, ranging from the federal government pledging its financial backing to the nuclear industry in case of an accident like Chernobyl to payments of about \$350 million annually to coal miners suffering from black lung disease.

More importantly, coal, our largest electricity source, receives an enormous hidden subsidy due to the fact that its environmental costs are not included in its market price. A recent article in the scientific journal "Science" placed the cost of electricity from a new coal plant at 3.5 to 4 cents per kilowatt-hour (kWh), but added that its true cost to the public is 5.5 to 8.3 cents/kWh when environmental costs such as air pollution and acid rain are added in. This amounts to a subsidy ranging from 60% to more than 100%(!). As long as the economic system does not reflect such costs, it is good public policy to provide offsetting subsidies to clean energy sources such as wind.

5. Are wind generators noisy?

Objective measurements with sound meters show that a wind turbine, at a distance of 500 to 750 meters, is no noisier than a kitchen refrigerator or a moderately quiet room. For further information, see <http://www.awea.org/fag/noisefaq.html>. If you doubt this statement, we invite you to visit a wind farm and see for yourself.

6. Do wind farms take up too much space?

"With today's wind turbine technology, wind power could supply 20% of this nation's electricity, according to a recent study by Pacific Northwest Laboratory (PNL). Today's technology exploits high-wind locations--those in wind power class 5 or greater--with average annual wind speeds of approximately 16 mph and higher at a height of 30m. To provide 20% of America's electricity, 560,000 million kilowatt-hours (kWh) per year, 0.6% of the land of the lower 48 states would have to be developed with wind power plants. This area, about 18,000 square miles, is about the size of four counties in Montana. Furthermore, less than 5% of this land would be occupied by wind turbines, electrical equipment, and access roads. Most existing land use, such as farming and ranching, would remain as it is now."

Source: "America Takes Stock of a Vast Energy Resource," Utility Wind Interest Group, February 1992--part of a series of informational brochures produced under the auspices of the Utility Wind Interest Group by the Technical Information Program located at the National Renewable Energy Laboratory (NREL) and published by the Electric Power Research Institute (EPRI).

7. Is wind unreliable?

Mr. Schleede claims that wind energy is unreliable, and is not always clear as to whether he is talking about the wind itself or about wind generators. Let's be clear--the wind does not always blow, but wind turbines are highly reliable, and ready to generate electricity when it does. Average wind turbine "availability" (readiness to generate) is actually higher than the average availability of conventional power plants (98% for wind, approximately 95% for conventional power plants). Furthermore, wind projects consist of many relatively small turbines rather than one or two large generators like conventional power plants. Therefore, the likelihood of a sudden, unanticipated loss of all power from a wind plant is significantly less than that for a conventional power plant of equivalent size.

The wind is definitely variable, but utility system operators are always dealing with a changing situation, as consumer demand fluctuates and power plants (conventional as well as wind) start up or shut down. Adding 10-15% percent of wind generation to a utility system has very little effect on a system already designed to handle this level of variability. If wind were the ONLY power source, then major changes to the system would be needed--but no one envisions that.

8. Does wind provide tax income to local communities and counties?

Mr. Schleede claims that wind farms are often exempt from state and local taxes. This is not true. Property taxes on wind can be a significant income source for rural counties.

A final word: wind energy is not perfect. It IS more variable than other energy sources, and to be used on a very large scale in the U.S., it will require additional transmission lines. But on the positive side:

- It is very clean.**
- It cannot be depleted.**
- It will allow us to diversify our energy sources.**
- It can help to save family farms.**
- It is quiet and easy on the environment.**

On balance, it is one of the most promising new energy sources available to America and the world.